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DIRAC: Reliable Data Management for LHCb

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DIRAC, LHCb's Grid Workload and Data Management System, utilises WLCG resources and middleware components to perform distributed computing tasks satisfying LHCb's Computing Model. The Data Management System (DMS) handles data transfer and data access within LHCb. Its scope ranges from the output of the LHCb Online system to Grid-enabled storage for all data types. It supports metadata for these files in replica and bookkeeping catalogues, allowing dataset selection and localisation. The DMS controls the movement of files in a redundant fashion whilst providing utilities for accessing all metadata. To do these tasks effectively the DMS requires complete self integrity between its components and external physical storage. The DMS provides highly redundant management of all LHCb data to leverage available storage resources and to manage transient errors in underlying services. It provides data driven and reliable distribution of files as well as reliable job output upload, utilising VO Boxes at LHCb Tier1 sites to prevent data loss.

In this paper the evolution of the DIRAC Data Management System will be presented highlighting successful design choices and limitations discovered.

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